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ABSTRACT

Most patients with diagnosable major depression may fail to show the classic symptom pattern for which standard assessment instruments were designed. To investigate the influence of subtype of depressive illness on Zung Self-Rating Scale (SDS) and Hamilton Rating Scale (HRS) validity, 36 in-patients, who met Diagnostic and Statistical Manual (DSM-III) criteria for major depression (47% male, mean age of 42 years), were assessed on the HRS and the SDS on the same day at baseline, and at the end of each successive week of treatment, to total 164 paired assessments. The HRS was rated by two psychiatrists, while the SDS was factor analyzed. An analysis of the results showed that across all paired assessments, the correlation between the two scales was statistically significant and of moderate strength. Correlation between HRS and SDS scores declined sharply with increasing severity of depression as measured by the HRS, so that there was no positive relationship between clinicians' and patients' ratings of their depressive severity. The factor analysis of SDS indicated a stable, underlying factor structure in the symptom patterns of a wide range of depressive disorders. Agreement between the two scales showed that the endogeneity factor was most significant in predicting agreement, with lower agreement for nonendogenous symptoms. To the extent that conventional depression rating scales are unsuited to those not in the melancholic subtype, alternative assessment measures, reflecting changing boundaries of diagnosis, need to be applied. (BL)

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The influence of sub-type of depression
on self-rating scale validity

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Clinical investigation of depression calls for means to reliably and validly estimate severity of symptomatology in the population under study. Many rating scales have been developed for this purpose. A few, such as the Hamilton Rating Scale for depression (HRS) and the Zung Self-Rating Scale (SDS), have achieved such widespread usage as to constitute standard instruments in antidepressant treatment studies and have even gained some clinical use, particularly for the SDS. However, these scales are predicated on assumptions about the nature of depressive disorders which may become outdated as our understanding and definitions of depression evolve.

The HRS was developed during the late 1950's, when the popular model of depression was classic melancholia or endogenous depression, which commonly involved insomnia with early-morning awakening, anorexia with weight loss, psychomotor agitation or retardation, and lack of mood reactivity to environmental stimuli (1). Half of the maximum possible HRS score comprises endogenously-oriented somatic and behavioral components.

To complement the clinician-rated HRS, the patient-rated SDS is often included in research protocols. Construction of the SDS was based on the assumption of four underlying "factors" of depressive illness: pervasive affective disturbance, physiological disturbances, psychomotor disturbance, and psychological disturbance. Behavioral and somatic components again comprise about half the maximum possible total score. Also, items are designed to yield higher scores only for endogenous symptoms. For example, affirmative response to the item, "I have trouble sleeping at night," adds to the severity score, without any corresponding item to reflect hypersomnia as a depressive symptom; similarly, the SDS (like the HRS) includes two items scoring anorexia and weight loss, but none to reflect hyperphagia or weight gain as symptoms.

Standard diagnostic systems such as DSM-II in use at the time these scales were developed mentioned symptoms only as descriptors characterizing possible

clinical pictures. In contrast, DSM-III not only specifies symptoms as criteria for diagnosing Major Depression, but has broadened these criteria to include "atypical", nonmelancholic symptoms such as oversleeping and hyperphagia; in fact, a patient may qualify for this diagnosis without exhibiting any of the symptoms required for a subclassification of Melancholia. Furthermore, it is likely that in numbers of patients affected, Major Depression without Melancholia far exceeds Melancholia itself. In other words, most patients with diagnosable Major Depression --likely subjects for many future studies and patients for antidepressant treatment-- may fail to show the classic symptom pattern for which standard assessment measures were designed. Will these measures then prove inadequate or invalid for the population under study? We wish to offer some evidence for this.

The use of factor analysis has enabled direct examination of the relationship between underlying symptomatic clusters, such as endogeneity, and the validity of scales under consideration. One way of validating a rating scale is to compare it with another scale designed to measure the same clinical dimension. Thus, several studies have compared HRS, SDS and other scale scores rated on the same patients (2-3), and found substantial correlations. However, no research has addressed the influence of subtype of depressive illness on SDS-HRS scale validity.

Method: Thirty-six in-patients at LAC-USC Psychiatric Hospital who met DSM-III criteria for Major Depression were admitted to a four-week, double-blind antidepressant trial reported elsewhere (4). The patient group comprised equal numbers of males (47%) and females (53%), averaging 42 years of age (range 20-62); 30% fulfilled DSM-III criteria for the Melancholic subtype of Major Depression.

At baseline and at the end of each successive week of treatment, the patients were assessed with HRS and SDS administered on the same day. The HRS was rated by one of two project psychiatrists, each with over four years' experience with this

instrument, with concurrent reliability ranging from 0.89 to 0.99. Both psychiatrists were blind to the results of the SDS, administered separately by the first author.

In this manner, a total of 164 complete sets of matched HRS and SDS scores was obtained; the remaining sets were incomplete due to recording errors or patients' refusal to cooperate.

SDS ratings were factor analyzed using the principal components method with unities placed in the diagonal of the correlation matrix. Factors having eigenvalues greater than one were rotated to the normalized varimax solution (5).

Results: Across all 164 paired HRS-SDS assessments, the correlation between the two scales was statistically significant and of moderate strength ($r=.60$, $p<.001$). When analyzed by week of assessment, lowest correlation was found just prior to treatment ($r=.16$, NS), with correlations at all subsequent assessments of consistently significant magnitude ($r=.59$ to $.69$). Correlations between HRS and SDS scores declined sharply with increasing severity as measured by the HRS, so that above HRS scores of 30 there was no positive relationship between clinicians' and patients' ratings of depressive severity.

Five factors were extracted from the SDS; Factor 1, loading highest on items with an affective component, such as depressed mood; Factor 2, reflecting an agitated, labile element; Factor 3, loading highest on melancholic/endogenous items such as morning worsening of mood, insomnia, and loss of libido; Factors 4 and 5, loading on somatic complaints. Multiple regression techniques were used to analyze these five factor scores as potential predictors of agreement between SDS and HRS total scores.

The five factors accounted for a significant percentage of the overall variance in agreement ($R=.31$, $p<.01$). The major part of this prediction was

accounted for by Factor 3, endogeneity ($r=.25$, $p<.001$, $F=10.45$, $df=5,51$).

Agreement between clinicians and patients was significantly higher for patients with a high loading on this endogeneity factor than for those with a low loading.

Further analysis of agreement scores as predicted by clinicians' rating of individual HRS items indicated only two symptoms of importance in predicting disagreement -- lack of insight and paranoia (insight $p<.001$, $F=8.16$, $df=2,125$; paranoia $p<.05$, $F=4.4$, $df=2,125$).

Discussion: Our data point up limitations to the validity of standard approaches to the assessment of severity of depression in certain groups of patients.

Correlation between SDS and HRS fell sharply in the face of increasing severity of depression, so that the most severely depressed patients (as identified by the clinician) failed to share the clinicians' perception of the severity of their disorders. Patients' and clinicians' agreement was thus lowest at pre-treatment.

The results of our factor analysis of the SDS, consistent with previous reports derived from less severely depressed outpatients (6), indicate a stable, underlying factor structure in the symptom patterns of a wide range of depressive disorders. Multiple regression analysis of the agreement between the two scales showed that the endogeneity factor was by far the most significant in predicting agreement, with lower agreement for patients showing nonendogenous symptoms.

Using the Carroll Rating Scale, a self-report measure closely related to the HRS, Feinberg (7) also found low inter-scale agreement in the nonendogenous type of depressed patient.

This is understandable considering the individual items that comprise these and other standard depression rating scales. Most weigh heavily on characteristically melancholic or endogenous symptoms and minimize or completely omit such "atypical" depressive symptoms as hypersomnia, hyperphagia, weight gain,

irritability, mood lability and phobias. They are even less applicable to the day-to-day fluctuations in clinical status typical of Dysthymic Disorder. However, even in a severely depressed inpatient population of Major Depressives such as ours, the melancholic subtype comprises only a minority of the patients under study. To the extent that conventional depression rating scales are unsuited to these patients, we need to turn to alternative measures for their assessment. This may seem obvious to some, but standard research instruments and measures for clinical assessment tend to persist in the face of changing boundaries of diagnosis. Both clinicians and researchers should remain sensitive to how new diagnostic definitions may invalidate old approaches to evaluation.

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